



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/591,844

09/05/2006

Klaus Maldener

3831

3320

278

7590

07/09/2008

MICHAEL J. STRIKER
103 EAST NECK ROAD
HUNTINGTON, NY 11743

EXAMINER

MOK, ALEX W

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

07/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,844	Applicant(s) MALDENER ET AL.	
	Examiner ALEX W. MOK	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment

1. Acknowledgement is made of Amendment filed March 12, 2008.
2. Acknowledgement is made of the amendments to the specification submitted in the amendment filed March 12, 2008.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 6, 10, 11, 13-17, 19, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. (WIPO Document No.: WO 3067742 A1), and further in view of Oberle et al. (German Patent Document No.: DE 100 53 245 A1).

For claim 1, Wehrle et al. disclose a rotor of an electrical machine having at least one permanent magnet (reference numeral 2, see figure 1), which is embodied as a hollow cylinder and which has axial contact faces that cooperate with corresponding axial clamping faces (reference numeral 7) of at least one retaining element (reference numeral 4), with which element the permanent magnet is secured to the rotor (see figure 1). Wehrle et al. also teach the retaining element having a spring element (reference numeral 7, see figures 2, 3), which presses the clamping face against the

contact face with a contact pressure (figure 1). Wehrle et al. do not specifically teach at least one of the clamping faces having a knurling extending in the radial direction.

Oberle et al. teach a holding element (reference numeral 23, figures 4, 5) having a knurling extending in the radial direction.

It would have been obvious to have this configuration, since the invention of Oberle et al. is related to securing components to the rotor (see the Abstract), the same problem the claimed invention is concerned with, therefore enabling a person of ordinary skill in the art to use this technique in the invention of Wehrle et al.

For claim 2, Oberle et al. teach the knurling having radial grooves and axially pointed raised areas which extend in the radial direction (see figure 4), and it would have been obvious to include this for the reasons given above for claim 1.

For claim 3, Wehre et al. teach the retaining element having a ring element (see figures 1-3), on whose axial side, the clamping face is integrally formed (see figures 1-3).

For claims 5 and 19, Wehrle et al. teach the spring element (reference numeral 7, see figures 2, 3) being braced axially and radially on the retaining element and elastically supporting the permanent magnet (see figure 1), and it would have been obvious to have the spring element be configured as a cup spring since this would merely involve changing the shape, and this would press the ring element against the magnet.

For claim 6, since it would have been obvious to have the radial raised areas as explained for claim 2 above, then it would have been obvious for a person skilled in the

art to include this in the invention of Wehrle et al. and have it engage the inside of the contact face of the permanent magnet for the purpose of transmitting a torque between the permanent magnet and the retaining element and/or to center the permanent magnet radially to the rotor.

For claim 10, Wehrle et al. disclose the rotor having a rotor shaft (reference numeral 3), embodied as a magnetic short circuit (see figure 1), which is surrounded by a ring element that has the clamping face (reference numeral 7).

For claims 11 and 24, Wehrle et al. teach the retaining element having a radial collar (reference numeral 5, see figure 1) on which the permanent magnet can be braced for radial precentering, and the retaining element of Wehrle et al. can be considered to have a ring element.

For claim 13, Wehrle et al. teach the retaining element being embodied as a sleeve with an axial shoulder on which the contact face is braced (see figure 1).

For claim 14, Wehrle et al. illustrate the axial shoulder of the retaining element being embodied as the clamping face (see figure 1).

For claim 15, it would have been obvious to make the permanent magnet, on its inside face, have extensions with which the permanent magnet is pressed against the sleeve for precentering, since this would involve a mere change in the shape of the component, and this claimed configuration is just one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of securing components of an invention. In re Dailey 149 USPQ 47, 50 (CCPA 1966). See also Glue Co. v. Upton 97 US 3,24 (USSC 1878).

For claim 16, it would have been obvious to have the retaining element be embodied as a magnetic short circuit, since this would involve a mere change in the position of a component, and it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

For claims 17 and 25, Wehrle et al. teach the spring element being embodied as a speed nut (reference numeral 7, see figures 1-3), which is braced directly on the sleeve, and it rests directly on one of the contact faces (see figure 1).

For claim 26, it would have been obvious to have the radial knurling dig into the contact face of the magnet under a clamping force since it would be obvious to have the knurling on the clamping face as explained for claim 1, and a person of ordinary skill easily would have been able to apply a clamping force and therefore have the knurling dig into the magnet for the purpose of further securing the components of the rotor.

5. Claims 7, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Oberle et al. as applied to claim 1 above, and further in view of Oshima et al. (US Patent Application Pub. No.: US 2004/0046469 A1).

For claims 7, 20, and 21, the inventions of Wehrle et al. and Oberle et al. teach the claimed invention except for the permanent magnet being manufactured of sintered material or plastic-bonded material.

Oshima et al. disclose a rotor having magnets of sintered material (see paragraph [0054], and figure 4).

It would have been obvious to include this configuration for the magnets, and also to have the permanent magnets be composed of either ferrite elements, rare earth elements, or elements such as NdFeB, since the invention of Oshima et al. is related to rotors for electrical machines, and a person of ordinary skill in the art would have been able to make the magnets out of a known material for its suitability in the invention, such as the material taught by Oshima et al.

6. Claims 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Oberle et al. as applied to claim 1 above, and further in view of Hamamura et al. (US Patent Application Pub. No.: US 2004/0051415 A1).

For claims 8 and 22, it would have been obvious to make the permanent magnet have a coating, and to have the coating be composed of either epoxy resin, nickel, or aluminum, since the reference of Hamamura et al. disclose resin coating (see paragraph [0004]), and it would have been within the knowledge of a person of ordinary skill in the art to select a coating that is softer than the material of the raised areas for the purpose of protecting the magnet against corrosion.

7. Claims 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Oberle et al. as applied to claim 1 above, and further in view of Montagu (US Patent No.: 5936324).

For claims 9 and 23, it would have been obvious to have the raised areas be manufactured of harder material than the permanent magnet or the coating, have the

raised areas composed of steel or Invar, and have a coefficient of thermal expansion that is adapted to the permanent magnet used, since this would involve selecting a preferred material to form a component, which has been held to be within the general skill of a worker in the art. Also the invention of Montagu teaches a rotor in which the ends that are supporting the magnet are made of a certain coefficient of thermal expansion that would adapt to the permanent magnet (column 3, lines 47-52).

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Oberle et al. as applied to claim 1 above, and further in view of Huynh (US Patent No. 5942829).

For claim 12, it would have been obvious to have the retaining element be fixed on the rotor shaft by means of securing rings, spring components, laser welding, adhesive bonding, material deformation, or shrink-fitting, since these types of fixing means are well known in the art at the time the invention was made, such as shrink fitting as exhibited by Huynh (see column 4, lines 15-17).

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wehrle et al. and Oberle et al. as applied to claim 1 above, and further in view of Suzuki et al. (US Patent Application Pub. No.: US 2002/0130577 A1).

For claim 18, it would have been obvious to have the permanent magnet cooperate with a Hall sensor, since Suzuki et al. teach a rotor with a magnet cooperating with a Hall sensor (see paragraph [0037]), and a person of ordinary skill in

the art would have been able to have this configuration for the purpose of detecting the rotational position of the rotor.

Response to Arguments

10. Applicant's arguments filed March 12, 2008 have been fully considered but they are not persuasive. The references of Wehrle et al. and Oberle et al. still disclose the invention of claim 1, and a person of ordinary skill in the art can still apply the knurling taught by Oberle et al. to the invention of Wehrle et al. and this would result in the applicant's invention since this would secure the positioning of the magnet within the rotor.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX W. MOK whose telephone number is (571)272-9084. The examiner can normally be reached on 7:30-5:00 Eastern Time, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alex W. Mok
Examiner
Art Unit 2834

/A. W. M./
Examiner, Art Unit 2834

/BURTON MULLINS/
Primary Examiner, Art Unit 2834